



Indoor Air Quality Monitor

July 2003

 North Dakota Department of Health

Eye on Events

IAQ Action and Awareness Month

October is Indoor Air Quality (IAQ) Action and Awareness Month, and now is the time to begin preparations to participate in this public awareness campaign. IAQ month was developed by the Healthy Indoor Air for America's Homes Program and has been supported in the past by declarations from the President and North Dakota's governor. For more information, contact the Healthy Indoor Air for America's Homes Program at 406.994.3451 or visit the web page at

www.montana.edu/wwwcx/air/

IAQ Tools for Schools Symposium

The U.S. EPA will host its Fourth Annual Indoor Air Quality Tools for Schools National Symposium October 26-28, 2003, at the Grand Hyatt Hotel in Washington, D.C. For more information or to register for the symposium, visit

www.epa.gov/iaq/schools/symposium.html

Asbestos History and Regulations

**Before you
renovate or
demolish ...**



**Information you must know
about state and federal
requirements regarding
asbestos.**



North Dakota Department of Health
Division of Air Quality
Asbestos Control Program

**Asbestos brochure available at
the North Dakota Department of
Health by calling 701.328.5188.**

With the passage of the Clean Air Act in 1970, the U.S. EPA began to establish rules regarding asbestos uses and handling procedures.

In 1982 the Asbestos School Hazard Abatement Act was passed, requiring public and private schools to identify all friable asbestos-containing materials in their buildings. "Friable" refers to asbestos-containing material that hand pressure or mechanical forces will crumble or reduce to powder when dry.

The passage of the Asbestos Hazard Emergency Response Act (AHERA) in 1986 required all schools to be inspected for all asbestos-containing building materials, not just friable material. AHERA also established training criteria for the asbestos disciplines still in use today.

The last major changes to the Clean Air Act came in November 1990, and

today all states have implemented the asbestos National Emission Standards for Hazardous Air Pollutants regulations. The Occupational Safety and Health Administration also has regulations to protect workers who deal with asbestos.

The North Dakota Department of Health (NDDoH) has requirements that must be met when demolishing or renovating a facility. The term "facility" generally refers to any building other than a residential house or apartment building of four or fewer units.

Before any demolition or renovation of a facility may begin, that facility or the affected part of the facility must be inspected for the presence of asbestos by a North Dakota-certified asbestos inspector.

All regulated asbestos-containing material must be removed from a facility before demolition or renovation may begin.

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In addition to removal of the regulated asbestos-containing material, non-regulated asbestos-containing material also may need to be removed, depending on work practices and disposal options being considered. Only a

North Dakota licensed and certified contractor may remove asbestos.

In addition, a Notification of Demolition and Renovation form must be submitted to the NDDoH 10 days prior to any facility demolition or any facility renovation project that

will disturb more than 160 linear feet or 260 square feet of regulated asbestos-containing material.

For more information, contact the NDDoH at 701.328.5188.

Indoor Air Quality Mechanical System Inspections

The heating, ventilation and air conditioning (HVAC) unit of a building is a key component of a building's indoor air quality.

Providing adequate fresh-air ventilation is a key factor in maintaining good indoor air quality. An adequate supply of fresh air will dilute the concentration of indoor pollutants and increase the availability of oxygen, while an inadequate supply of fresh air can result in lethargy, headaches, drowsiness, dizziness and nausea.

While a properly functioning HVAC unit is essential to providing good indoor air quality, a poorly functioning HVAC unit can create or exacerbate indoor air quality problems in a building.

During an indoor air quality inspection, it is important to examine all components of a HVAC unit and nearby for problems.

One common indoor air quality problem associated with HVAC units can occur when a pollutant source is placed near the fresh air intake for a building's ventilation system. Fumes or particulate matter from the pollutant source can be drawn into the HVAC unit, along with outside air, and then distributed throughout the building.

Common pollutant sources that may create

an HVAC entrainment problem include exhaust from nearby vehicles, cigarette smoke from smokers on a break, odors from a nearby garbage dumpster and microbial contaminants from a nearby source of standing water.

Another problem to look for is moisture intrusion into or near the HVAC unit or duct work. The presence of moisture makes an environment conducive to microbial growth. Outbreaks of *Legionella* have often been linked to contamination of a building's HVAC unit due to moisture problems.

Some common moisture control problems associated with HVAC units include condensate pans that do not adequately drain, duct work that is placed in a wet environment, condensation that occurs on cold duct work and nearby pipe or roof leaks.

Another potential HVAC problem can occur if the system is not properly balanced or is not functioning as designed.

Regular inspections and maintenance of a building HVAC unit are essential to preventing and addressing these and other indoor air quality problems. A professional HVAC engineer should be consulted before any modifications are made to the design or operation of an HVAC system.



A disconnected central vacuum tube creates a dust problem near a cold air return in a ceiling plenum.

IAQ Colleague



**Allen McKay, RS, EHP,
Lake Region District
Health**

This issue's IAQ colleague is Allen McKay, environmental health practitioner at Lake Region District Health Unit (LRDHU) in Devils Lake, N.D. The LRDHU coverage area includes Ramsey, Benson, Pierce and Eddy counties.

Allen has worked with LRDHU since 1988. His duties include inspections of septic systems, restaurants, pools, private wells, schools, day care centers and retirement homes as well as response to nuisance complaints.

Allen promotes radon testing and mitigation by presenting radio programs, setting up displays at local health fairs and handing out radon test kits. He also conducts indoor air quality inspections and makes recommendations to building owners to improve indoor air quality.

"Mold has been a constant problem since the rising of Devils Lake in 1993," Allen said.

When he is not working, Allen enjoys fishing, camping, curling and woodworking.

Tool Talk: Indoor Air Quality Equipment Review

An infrared camera can detect slight changes in temperature within a building. With a black and white camera, cooler areas show up as black, while warmer surfaces appear white. With color imaging, cooler surfaces appear green, blue or black, while warmer areas are red, orange, yellow or white.

A fascinating fact regarding infrared cameras is that an image of an area shows up the same in a dark environment as in the light.

This fact does make for some necessary, but not too difficult, adjustments by the user.

When used as a part of an IAQ visual inspection, an infrared camera enables an inspector to gather information about the thermal properties of a home. In a cool climate, locations of increased heat loss from a building show up as cool areas from the inside of a building. From the



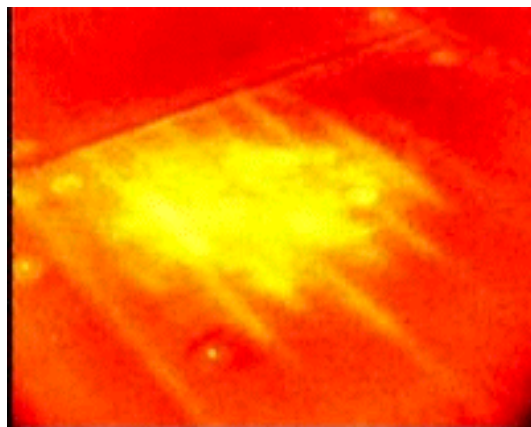
An infrared image taken from the exterior of a house shows the areas of increased heat loss especially around the windows and doors.

outside, the areas of heat loss show up as warm areas. In a warm climate, the colors would be reversed.

Determining where a building is losing heat not only is an energy conservation concern, but also can pinpoint potential indoor air quality problems. Areas of heat loss represent areas where there is an increased chance condensation will occur. If condensation occurs and the affected area does not dry adequately, the area will be conducive to microbial contamination, such as mold growth.

In addition to finding areas of heat loss, infrared cameras can be used to find areas of moisture damage. Wet areas show up as areas of heat loss. Past or present moisture in insulation reduces the effectiveness of the insulation.

When used in conjunction with a blower door, an infrared camera can help locate areas of air infiltration into or out of a building. Understanding air

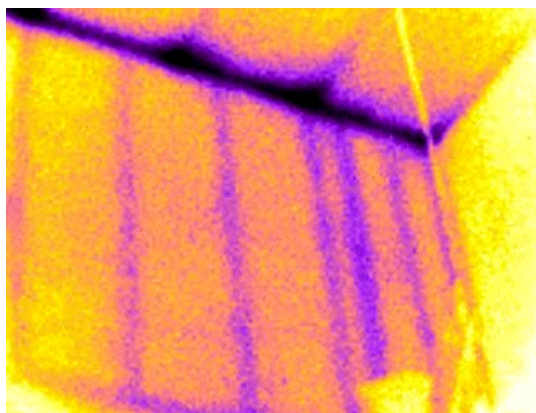


An area of moisture damage within a wall shows up cooler than the rest of the wall.

flows, ventilation and make-up air within a building is essential in mapping potential pollutant pathways.

The biggest downside to an infrared camera is the cost. Cameras that are sensitive enough to detect subtle temperature changes cost about \$10,000.

For more information, contact NDDoH at 701.328.5188.



Because the studs in a wall represent areas that lack insulation they show up in an infrared image as cool spots.

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Dr. Terry Dwelle, State Health Officer
Dave Glatt, Chief, Environmental Health Section
Terry O'Clair, Director, Division of Air Quality
Ken Wangler, Manager, Indoor Air Quality Program
Editor: Jesse Green



North Dakota Department of Health
Division of Air Quality
1200 Missouri Ave., Box 5520
Bismarck, N.D. 58505
701.328.5188

Questions? Comments? Suggestions? Something to add to the next issue? Call Jesse Green at 701.328.5188